

Applicant(s) : Hartmut Sauer
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Attorney Docket No.: 68001-003US1

AMENDMENTS TO THE DRAWINGS

The attached two new sheets of drawings include original Figures 1-4 presented in PCT/IB2004/050458 (i.e., WO 2004/092436 A2).

REMARKS

This document is submitted in reply to the Office Action dated September 19, 2008 ("Office Action").

Applicant has amended claims 1, 2, 4, 5, and 8 to particularly point out what he deems as his invention. Support can be found in the Specification at page 12, lines 11 and 25. Applicant has also amended claims 3, 6, 7, 9-17 and 20 to promote clarity. Further, Applicant has added three new claims, i.e., claims 21-23, support for which appears in original claims 4, 5, and 8. Finally, Applicant has both amended and withdrawn claims 18 and 19 covering non-elected subject matter. No new matter has been introduced.

A new title has been proposed, which reads "An Article Having a Metallic Composite Material with Increased Adhesive Strength."

Upon entry of new claims 21-23, claims 1-17 and 20-23 will be under examination. Applicant respectfully requests that the Examiner reconsider this application in view of the following remarks.

Information Disclosure Statement

The Examiner points out that various references cited in the Specification were not considered as they were not included on form PTO-892. See the Office Action, page 3, line 20 through page 4, line 14. Applicant would like to point out that the references not submitted in form PTO-892 are not material to the patentability of this application.

The Examiner also points out that EP 0 545 230 A1, listed on the Information Disclosure Sheet (IDS), is inconsistent with EP 0 545 230 B1 listed in the Specification and request appropriate correction. Note that the reference cited in the Specification is a republication of the application cited in the IDS, Applicant therefore submits that correction is not required.

Specification Objections

The Examiner points out that the four figures referred to in the Specification and a brief description of these figures are missing. See the Office Action, page 4, line 18 through page 5, line 2. Applicant has rectified these deficiencies.

The Examiner also sets forth guidelines as to how to lay out a specification and suggests that Applicant follows them. See the Office Action, page 5, lines 3-29. Applicant has amended the Specification accordingly. In particular, section headings have been added.

The Examiner further objects to the Specification for informality. More specifically, he points out several inadvertent errors and provides suggestions for their correction. See the Office Action, page 6, lines 7-11. Applicant has corrected these errors accordingly.

Rejection under 35 U.S.C. § 112, 2nd paragraph

The Examiner rejects claims 1-17 and 20, drawn to an article having a composite material, for indefiniteness. See the Office Action, page 7, lines 8-9. More specifically, the Examiner rejects claims 1, 3, 5, and 8 on the ground that “they fail to set forth the composition or structure of the composite material and only claim properties of the article.” See the Office Action, page 7, lines 11-17. Applicant has amended claim 1 to set forth both the composition and the structure of the composite material of the article.

The Examiner also rejects claims 4, 5, and 8 as indefinite, contending that the meaning of the phrase “in particular” is unclear. See the Office Action, page 7, lines 18-20. Applicant has removed the phrase and its related context from these three claims.¹

The Examiner further rejects claim 4 as indefinite on the ground that the meaning of the recited term “the non metallic layer” does not have sufficient antecedent basis. See the Office Action, page 7, lines 21-22. Claim 4 has been amended to depend from claim 2, which recites “a first non-metallic layer and a second metallic layer.” Therefore,

¹ The amendment to claims 4, 5, and 8 has necessitated the addition of new claims 22-23.

Applicant submits that “the non metallic layer,” recited in amended claim 4 has sufficient antecedent basis

Rejection under 35 U.S.C. § 103

The Examiner rejects claims 1-17 and 20 for obviousness on four grounds. See the Office Action, pages 8-12. Applicant addresses them separately below.

I

Claims 1-11 are rejected as obvious over Suzue et al., US Patent 6,088,947 (“Suzue”) in view of Birchall et al., US Patent 4,015,050 (“Birchall”). See the Office Action, page 8, lines 24-26.

Independent claim 1 will be discussed first. This claim, as amended, covers an article having a composite material including a non-metallic substrate and a metallic layer. The composite material has an adhesive strength of at least 4 N/mm^2 .

The Examiner points out that Suzue describes an article having a composite material that is made of a non-metallic substrate and a metallic layer. See the Office Action, page 9, lines 1-12. Suzue is silent on the adhesive strength of the composite material.

Applicant now turns to Birchall. According to the Examiner, this reference describes a means of improving adhesion between a non-metallic substrate and a metal containing layer through the incorporation of calcium carbonate. See the Office Action, page 9, lines 13-16. Birchall, like Suzue, is also silent on the composite material described therein having an adhesive strength of at least 4 N/mm^2 .

Neither Suzue nor Birchall explicitly describes a composite material having the adhesive strength recited in claim 1, a feature that cannot reasonably be said to be present in the combination of Suzue and Birchall, as asserted by the Examiner. Indeed, a skilled person in the art would have been able to recognize that the feature at issue is not present in either Suzue or Birchall for the following reasons:

Suzue teaches that a metallic layer can be formed on a non-metallic substrate by methods such as chemical vapor deposition (CVD) and physical vapor deposition (PVD).

See column 4, lines 13-19, and column 6, lines 17-34. As mentioned in the present Specification, CVD and PVD result in a composite material having a very low adhesive strength (e.g., less than 2-3 N/mm²). See page 1, line 19 through page 2, line 21. Applicant therefore submits that one of ordinary skill in the art would have readily recognized that the adhesive strength of the Suzue composite material is low.

Turning to Birchall, it teaches adding calcium carbonate to improve adhesion. In contrast, the present Specification points out that (1) calcium carbonate is a contaminant that results in “predetermined breaking points” that lead to great variations in adhesive strength of the composite material and (2) uniformity in adhesive strength results from there being as little foreign components separating the non-metallic substrate from the metallic layer. See page 3 lines 15-17 and page 7, lines 5-12. As Birchall teaches adding calcium carbonate, it is clear that there would be large amount of calcium carbonate impurities and that there would be both significant variations in adhesive strength and large numbers of foreign components separating the non-metallic substrate from the metallic layer. These impurities affect the adhesive strength by separating the substrate from the metallic layer. Applicant therefore submits that one of ordinary skill in the art would have readily recognized that the adhesive strength of the Birchall composite material is low.

Failure of a combination of references (Suzue and Birchall here) to teach or suggest all feature of a claim remains fatal to an obviousness rejection. Indeed, MPEP § 2143.03 requires the “consideration” of **every claim feature** when determining obviousness. Indeed, the Board of Patent Appeal and Interferences held that a proper obviousness determination requires an Examiner to make “a searching comparison of the claimed invention – **including all its limitations** – with the teaching of the prior art.” *See In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995); emphasis original.

In addition to searching and comparing all limitations/features in a claimed invention, the Supreme Court in *KSR Int’l v. Teleflex Inc.* stated that “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of

obviousness.” *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (*quoting In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Applicant would like to point out that the Examiner has not provided any reasoning on why an adhesive strength of at least 4 N/mm^2 , a feature recited in claim 1, is rendered obvious by the combination of Suzue and Birchall, both of which, as discussed above, do not suggest the feature at issue to a skilled person in the art.

For the reasons and facts set forth above, Applicant submits that Suzue in combination with Birchall does not render claim 1 obvious. Nor does their combination render obvious claims 2-11, all of which depend, either directly or indirectly, from claim 1.

II

Claims 12-14 are rejected as obvious over Suzue and Birchall in view of Feldstein, US Patent 4,358,922 (“Feldstein”) and Metzger et al., US Patent 3,617,363 (“Metzger”). See the Office Action, page 10, lines 3-6. All of the rejected claims indirectly depend from claim 1.

Claim 1, as amended, covers an article that has a composite material with an adhesive strength of at least 4 N/mm^2 . This composite material includes a non-metallic substrate and a metallic layer.

As discussed above, Suzue and Birchall fail to suggest, either explicitly or implicitly, an adhesive strength of at least 4 N/mm^2 .

According to the Examiner, Feldstein “discloses depositing dual metallic coating on a **metallic base** with [a] first layer incorporating particulate matter.” See the Office Action, page 10, lines 9-12; emphasis added. Clearly, Feldstein does not describe a composite material including a **non-metallic substrate** and a metallic layer, let alone a composite material having an adhesive strength of at least 4 N/mm^2 , as required by claim 1.

Turning to Metzger, the Examiner points out that this reference “discloses the addition of non-metallic wear-resisting particles to metallic layers such as carbides ... molybdenum, and silicone [].” See the Office Action, page 10, lines 12-15. Metzger

does not teach or suggest a composite material having an adhesive strength of at least 4 N/mm^2 . Thus, Metzger does not cure the deficiency of Suzue and Birchall.

To conclude, none of Suzue, Birchall, Feldstein, and Metzger suggest a composite material having an adhesive strength of at least 4 N/mm^2 , as required by claim 1. Therefore, none of these references, either alone or in combination, render claim 1 obvious. Nor do they render obvious claims 12-14, all of which indirectly depend from claim 1.

III

Claims 15 and 16 are rejected as obvious over Suzue and Birchall in view of Kurze et al., US Patent 5,385,662 ("Kurze") and Nissen, European Patent 0112439 ("Nissen"). See the Office Action, page 11, lines 3-6. These two rejected claims depend from claim 1.

As pointed out above, a Claim 1, as amended, covers an article having a composite material that includes a non-metallic substrate and a metallic layer. The composite material has an adhesive strength of at least 4 N/mm^2 .

As also pointed out above, both Suzue and Birchall fail to suggest a feature of claim 1, i.e., a composite material having an adhesive strength of at least 4 N/mm^2 .

According to the Examiner, Kurze describes "producing oxide ceramic layers on aluminium and its alloys." See the Office Action, page 11, lines 10-11. It does not teach or suggest a composite material having an adhesive strength of at least 4 N/mm^2 . Therefore, this reference does not make up for the deficiency of both Suzue and Birchall.

Turning to Nissen, this reference describes anodic oxidation of aluminum alloys. See the Office Action, page 11, lines 11-12. Like Kurze, Nissen also does not teach or suggest the feature at issue.

For the same reasons set forth above, Applicant submits that Suzue, Birchall, Kurze, and Nissen, either alone or in combination, do not render claim 1 obvious. They also do not render obvious claims 15 and 16, both of which depend from claim 1.

IV

Claims 17 and 20 are rejected as obvious over Suzue, Birchall, Kurzue, and Nissen, in view of Schmidt et al., US Patent 5,385,662 ("Schmidt"), and Dittrich et al., German Patent 229163A. See the Office Action, page 11, line 20 through page 12, line 2. Rejected claims 17 and 20 depend indirectly from claim 1, discussed above.

As mentioned immediately above, all of Suzue, Birchall, Kurze, and Nissen fail to suggest a feature of claim 1, i.e., a composite material having an adhesive strength of at least 4 N/mm².

The Examiner points out that Schmidt and Dittrich both "disclose the use of electrolytes to produce black surface layers on light metal[s] like titanium and aluminum." Neither Schmidt nor Dittrich teaches a composite material having an adhesive strength of at least 4 N/mm². Thus, these two references do not cure the deficiency of Suzue, Birchall, Kurze, and Nissen.

For the reasons set forth above, Applicants submit that Suzue, Birchall, Kurzue, Nissen, Schmidt, and Dittrich, either alone or in combination, do not render claim 1 obvious. They also do not render obvious claims 17 and 20, which depend from claim 1.

New claims

Applicant has added three new claims, i.e., claims 21-23, all of which depend, directly or indirectly, from claim 1. Accordingly, these new claims are patentable for the same reason as to why claim 1 is patentable.

CONCLUSION

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment.

In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed.

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Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

The excess claims fee in the amount of \$ 156 and the Petition for Extension of Time fee in the amount of \$ 130 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization.

Please apply any other charges or credits to Deposit Account No. 50-4189, referencing Attorney Docket No. 68001-003US1.

Respectfully submitted,

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Y. Rocky Tsao
Y. Rocky Tsao, Ph.D., J.D.
Attorney for Applicants
Reg. No. 34,053

Occhiuti Rohlicek & Tsao LLP
10 Fawcett Street
Cambridge, MA 02138
Telephone: (617) 500-2509
Facsimile: (617) 500-2499